

Amendments to the Claims

Please amend claims to be as follows.

1. (previously presented) A system for power distribution of direct current (DC) power over twisted pair cabling to network devices, the system comprising:
 - a plurality of ethernet switches each having an internal power supply and a plurality of ports grouped into a plurality of banks for connecting to the network devices via said twisted pair cabling;
 - an external power supply having a plurality of output ports for connecting to the ethernet switches,
 - wherein the external power supply communicates power available to the ethernet switches,
 - wherein each ethernet switch determines amounts and priority levels of power for the network devices connected thereto, sums together the amounts at each priority level, determines additional amounts and priority levels of power required beyond the internal power supply capability, and sends a power request to the external power supply,
 - wherein the external power supply allocates power to the ethernet switches depending on the power requests received, and
 - wherein each ethernet switch includes a power multiplexer which is controllable so as to switch power from the internal power supply to one or more of the banks of ports and which is also controllable so as to switch power from the external power supply to one or more of the banks of ports.
2. (currently amended) The system of claim 1, wherein cabling connecting the external power supply and the ~~network~~ ethernet switches includes a digital communications channel to communicate the power available and the power requests.

3. (original) The system of claim 2, wherein the digital communications channel comprises a serial communications channel.
4. (original) The system of claim 1, further comprising:
 - a programmable current sense and control unit coupled to power output for each port of the external power supply.
5. (currently amended) The system of claim 4, further comprising:
 - a controller in the external power supply configured to determine the allocation of power to the ~~network~~ ethernet switches; and
 - a control bus coupling the controller to ~~each of the programmable current sense and control units~~ the programmable current sense and control unit in the external power supply.
6. (currently amended) The system of claim 1, further comprising:
 - a programmable current sense and control unit coupled to power output for each port of each ~~network~~ ethernet switch.
7. (currently amended) The system of claim 6, further comprising:
 - a controller in each ~~network~~ ethernet switch configured to determine the allocation of available power to the network devices; and
 - a control bus coupling the controller to ~~each of the programmable current sense and control units~~ the programmable current sense and control unit in the ~~network~~ ethernet switch.
8. (canceled)

9. (previously presented) The system of claim 1, wherein the ports are grouped into two banks, and wherein the power multiplexer is controllable to switch power from the internal power supply to a first bank of ports, to a second bank of ports, or to both the first and second bank of ports.
10. (original) The system of claim 9, the power multiplexer is further controllable to switch power from the external power supply to the first bank of ports, to the second bank of ports, or to both the first and second bank of ports.
11. (previously presented) The system of claim 1, wherein power from the external power supply is allocated by arbitration of the power requests.
12. (previously presented) The system of claim 11, wherein the arbitration comprises a master-slave arbitration procedure with one ethernet switch being designated as a master and other ethernet switches being designated as slaves.
13. (previously presented) The system of claim 11, wherein the arbitration comprises a peer-to-peer arbitration procedure with none of the ethernet switches being designated as a master for the arbitration procedure.

Claims 14-19. (canceled)

Claims 20-22. (canceled)

23. (currently amended) ~~The method of claim 22,~~ A method of distributing direct current (DC) power to network devices over twisted pair cabling, the method comprising:

associating an amount and priority level of power for each device
connected via said twisted pair cabling to a port of a network
switch;

maintaining in the switch a table of the amount and priority level for each
switch port;

summing together the amounts of power for the devices connected to the
network switch;

determining additional amounts and priority levels of power required
beyond a capability of an internal power supply in the network
switch;

communicating a power request to an external power supply; and
using the table to allocate available power to higher priority devices when
insufficient power is available to fully power all of the connected
devices.

wherein the allocation of power is controlled using current control
switches connected to the switch ports and using a power
multiplexer circuit which is configured to connect to the internal
power supply within the switch and to the external power supply,
and

wherein the power multiplexer circuit is controllable to switch power from
each said power supply to a first bank of ports, to a second bank of
ports, or to both the first and second bank of ports.

24. (currently amended) The method of ~~claim 24~~ claim 23, further comprising:
detecting actual power amounts drawn by the network devices using
current sensors coupled to the switch ports.

25. (original) The method of claim 24, wherein if an actual power drawn from a specific port exceeds the authorized power to that port, then the current switch associated with the port is open to halt the power drawn therefrom.
26. (currently amended) The method of ~~claim 20~~ claim 23, wherein the priority level of power for a switch port depends on which type of network device is connected to the port.
27. (original) The method of claim 26, wherein the higher priority devices include IP-enabled telephone devices.
28. (original) The method of claim 26, wherein the higher priority devices include at least one wireless access point.
29. (currently amended) The method of ~~claim 20~~ claim 23, wherein the priority levels of power for switch ports are manually configurable into the table by a network administrator.
30. (original) The system of claim 1, wherein the external power supply and the plurality of switches are integrated into a same unit.